DSP Products from Signalogic

- Software Products
- Hardware and Embedded System Products
- Development Systems

Software Products

- **DirectDSP®** DirectDSP software allows Visual C/C++, Visual Basic, MATLAB, and LabVIEW programs to read DSP board and chip data, update parameters in the processor's code or data, access variables and buffers by symbol names – all while the processor(s) on the board continue to run in real-time. Real-time data read can then be processed, displayed, written to file, etc.

  DirectDSP software is complementary to traditional JTAG-based debug and IDE software. DirectDSP provides "bulk transfer" debug capability and "real-time view" into the processor and onboard resources via a fast, non-JTAG method – For example, host-port, PCI bus, shared memory, etc, depending on the hardware type. One distinct advantage of using DirectDSP to access the board and processor vs. a JTAG based package is that JTAG normally requires the processor to be stopped to data transfers. In contrast, DirectDSP allows the processor to continue to run, including all analog I/O or other activities.

  For detailed information, please see http://www.signalogic.com/directDSP.htm

- **DSP Source Code Interface** (SCI) software allows user-defined changes and additions to "base" DSP source code, while still maintaining DirectDSP and Hypersignal software compatibility. The SCI includes processor and board initialization, analog I/O support (init and setup, interrupt handling, continuous buffering), host interface and communication, basic DSP and math routines, and more.

  For detailed information, please see http://www.signalogic.com/dspcode.htm

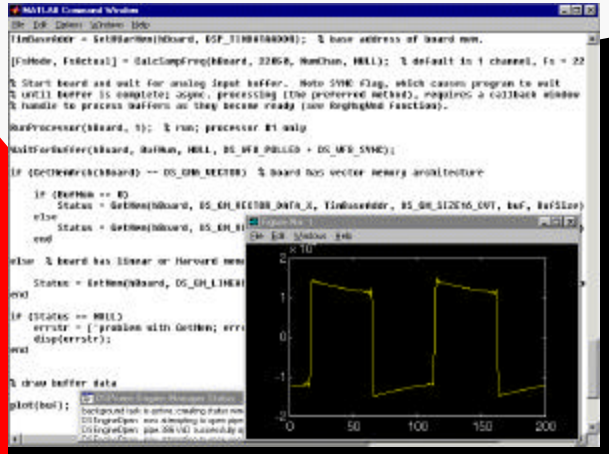
- **Real-Time Composer™ (RTC)** RTC is a combination of the previous DSPower-Block Diagram and DSPower-Real Time Code Generator software, with several new features and improvements added. RTC is expected to be in beta release in December 2002; if there is interest in obtaining a beta version, please contact Denise Nguyen dnguyen@Signalogic.com

  For detailed information, please see http:/www.signalogic.com/rtcomposer.htm

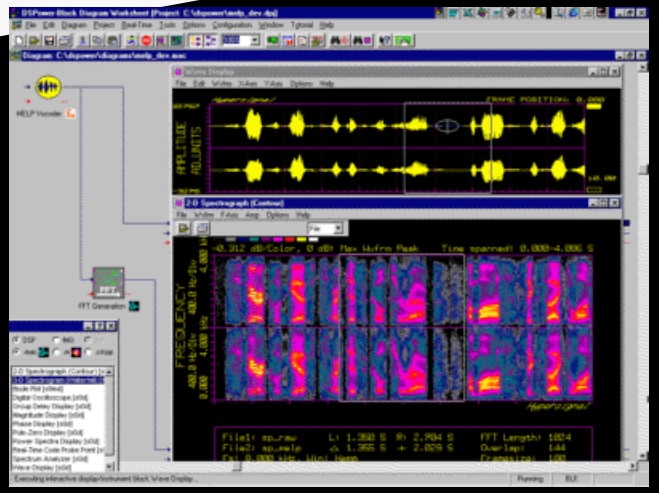
- **Real-Time Algorithms** In addition to off-the-shelf DSP software/hardware development tools and OEM products, Signalogic also develops real-time DSP algorithms for use in telecom, control system, and audio/acoustic applications. The company can offer integrated solutions because of its unique combined expertise in both DSP hardware and software. For example, turn-key, ready-to-run "telecom IP modules" are available which combine small, multi-DSP hardware PCBs with DSP real-time algorithms such as speech and audio codecs, voice software, control systems, and acoustic processing.

  For detailed information, please see http://www.signalogic.com/dsprt.htm

Software Images

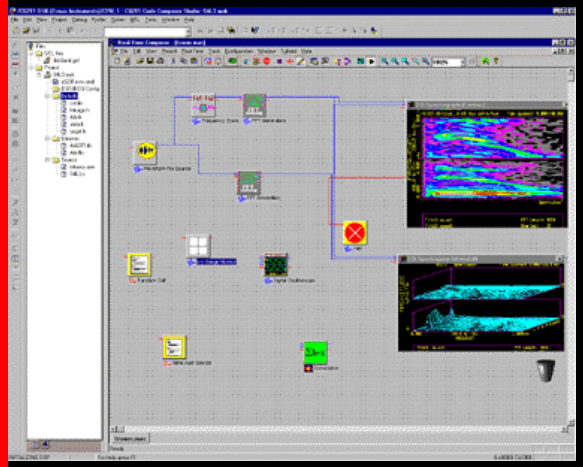


DirectDSP - Click here to see full-size picture
http://www.signalogic.com/dspdev/matlab.gif



Frequency domain (2-D spectrograph) and time domain (waveform display/edit) graphs of pre-MELP speech data (trace 1), and MELP-processed speech data (trace 2).

Click here to see full-size picture
http://www.signalogic.com/melp.htm



Real-Time Composer - Click here to see full-size picture
http://www.signalogic.com/rtc5_fs.htm

Hardware and Embedded System Products

- M62 or M67 - The M6x boards combine the power of the 32-bit fixed-point C6201 or 32-bit floating point C6701 DSP devices with onboard SRAM and SDRAM, digital I/O, and analog I/O module options. Two (2) onboard OMNIBUS module sites provide a range of analog I/O options, including sampling rates from dc to 20 MHz, multi-channel (2-32 simultaneous; up to 64 multiplexed), SAR or sigma-delta converter types. For detailed information, please see http://www.signalogic.com/m67.htm
- SigC54xx-PTMC Card - The SigC54xx-PTMC card provides an extremely high-density solution for next generation VoIP and VoATM infrastructure and carrier class products. The card is particularly well suited for cPCI embedded telecom and Internet equipment OEM applications where space is at a premium. In a typical VoIP or VoATM application, the SigC54xx-PTMC processes up to 1,536 TDM channels of uncompressed 64 kbps PCM voice, fax, or data traffic. Using Telogy software and packet processing logic, data is then compressed via G.711 or LBR CODEC to produce packetized voice with RTP header, or packetized fax using T.38 protocol. For VoIP transmission, UDP/IP header processing is an option; for VoATM transmission compressed voice of fax can be sent using AALO / AAL1 / AAL2.
  For detailed information, please see http://www.signalogic.com/sigc54xx_pmc.htm
- SigC54/55xx-PCI Card - The SigC54/55xx-PCI board uses a modular approach to provide up to 7.2 GIPS in a single PCI card slot. The board accepts modules with Texas Instruments C54xx and C55xx DSP processor and modules with 16-bit audio and speech analog I/O. It is suitable for embedded telecom and Internet infrastructure applications where space is at a premium.
  For detailed information, please see http://www.signalogic.com/sigc5xx_pci.htm
- SigC54xx-PC/104 Card - The SigC54xx-PC/104 card uses a modular approach to provide up to 1920 MIPS in a single PC/104 form-factor footprint. The card accepts modules with Texas Instruments C54xx DSP processors and modules with 16-bit audio and speech analog I/O. It is suitable for embedded telecom and Internet infrastructure applications where space is at a premium.
  For detailed information, please see http://www.signalogic.com/sigc54xx_pc104.htm
- SigC67xx-PC104 Card - The SigC67xx-PC/104 card uses a modular approach to provide up to 5 GFLOPS in a single PC/104 form-factor footprint. The card accepts off-the-shelf processor modules with Texas Instruments C67xx DSPs and 16-bit audio and speech I/O modules, and custom modules, for example H.110 or MVIP subset. It is well suited for embedded defense electronics, telecom and Internet infrastructure applications where space is at a premium.
  For detailed information, please see http://www.signalogic.com/sigc67xx_pc104.htm

Hardware and Embedded System Products (continued)

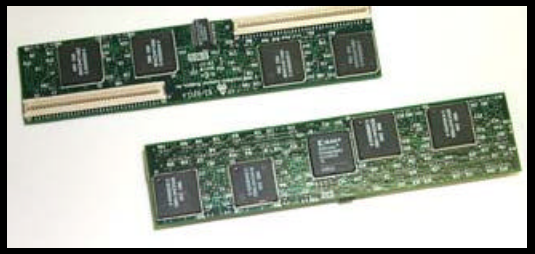
- **Sig80211-PC/104 Wireless Board** - Applications for the Sig80211-PC/104 wireless card include base-station processing, VoIP (voice-over Internet protocol) networking functions, VoDSL (voice-over DSL), Internet routing, multiple-channel speech or audio code / decode (e.g. G.7xx, GSM, or MELP speech compression and MP3 audio compression), modem banks, echo cancellation, and speech recognition.
  For detailed information, please see http://www.signalogic.com/wireless.htm

- **Super I/O** - The Super I/O PC/104 board provides a wide variety of I/O options, including network, telephony, and several types of serial I/O. In addition, the board also accepts modules with Texas Instruments C54xx, C55xx, or C67xx DSP processors and modules with 16-bit audio, speech, or other analog I/O. The Super I/O board is suitable for defense electronics, embedded telecom, Internet infrastructure, or data acquisition and measurement applications where space is at a premium.
  For detailed information, please see http://www.signalogic.com/super_i_o.htm

- **SigMGSS-cPCI Board** - The SigMGSS-cPCI board provides an IP-ready, high-connectivity, high channel density platform for media gateway, soft-switch, and other VoIP and VoATM infrastructure and carrier class products.
  For detailed information, please see http://www.signalogic.com/sigmgss.htm

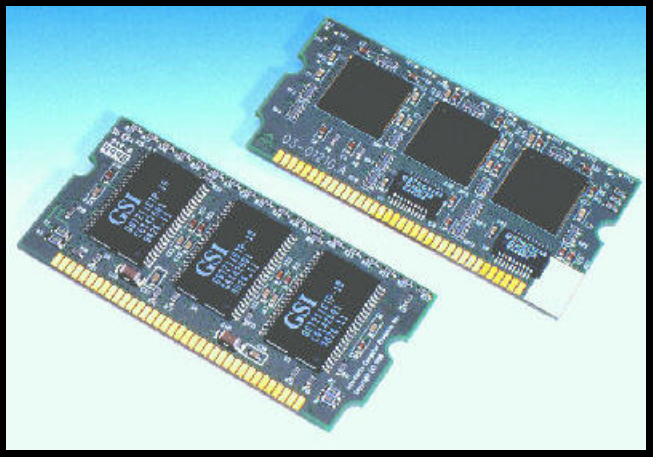
- **Telecom Modules** - SigC54xx multiprocessor modules provide DSP-intensive solutions for telecom-voice processing, Internet routing, and network infrastructure applications. The modular approach to massive DSP processing offers higher density and performance, lower cost, and several advantages for OEM products:
  - SODIMM, SIMM, DIMM, CONAN and other ultra-small PCB formats that use standard base-board connectors
  - base-board design is simplified and fabrication risk is decreased.
  - Modules can be upgraded easily, as faster and more capable DSP devices become available
  - for custom applications, it is straightforward to specify a module with fewer processors and more memory, or vice versa

Hardware and Embedded System Images



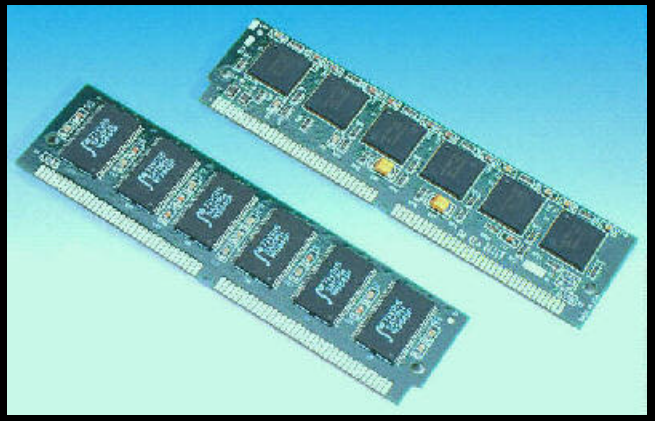
SigC5421-100-CONAN-16 Module

Click here to see full-size picture
http://www.signalogic.com/c5420_fs.htm#SigC5421-CONAN-16



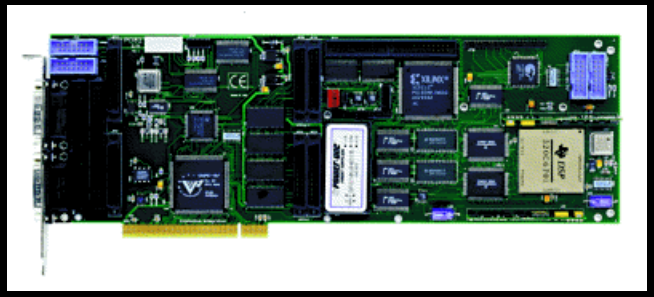
SigC549-100-SODIMM-3 Module. Processors on this module can also be C5402, C5409, and C5416

Click here to see full-size picture
http://www.signalogic.com/c549_fs.htm#SigC549-100-SODIMM-3



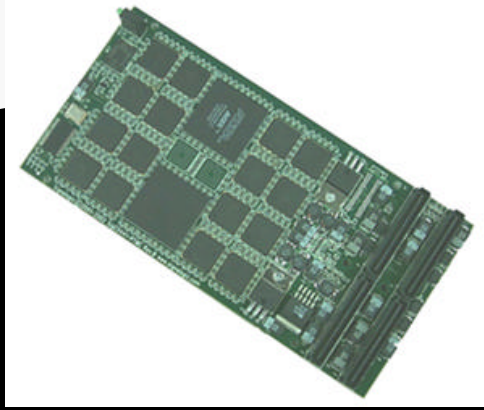
SigC549-100-SIMM-6 Module. Processor on this module can also be C5402, C5409, and C5416.

Click here to see full-size picture
http://www.signalogic.com/c549_fs.htm#SigC549-100-SIMM-6



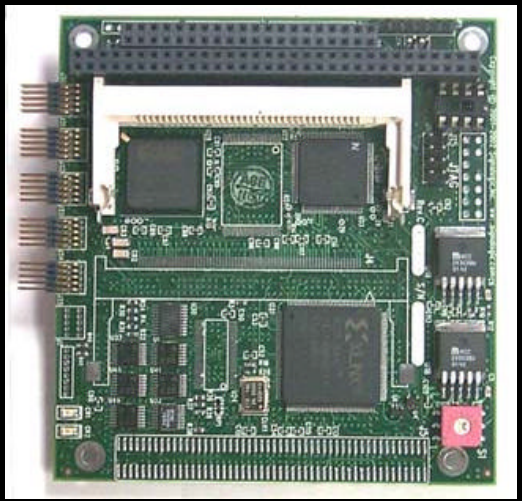
M67 board. Click here to see full-size picture
http://www.signalogic.com/m67fs.htm

Hardware and Embedded System Images (continued)



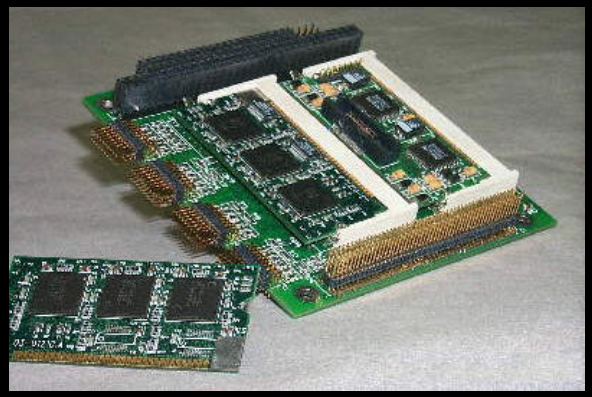
Mechanical Model of SigC54xx-PMC Card

Click here to see full-size picture
http://www.signalogic.com/sigc54xx_ptmc_fs.htm



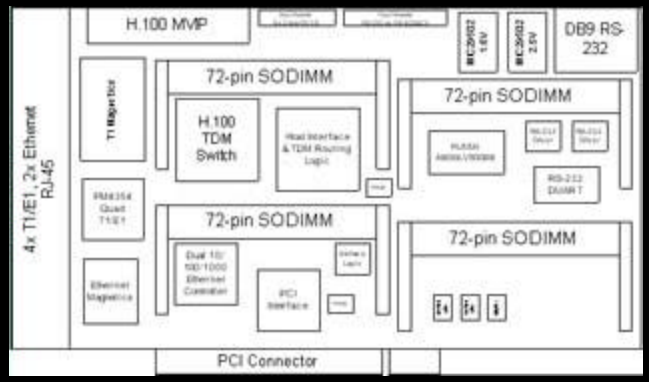
Super I/O PC/104 board

Click here to see full-size picture
http://www.signalogic.com/super_i_o_fs.htm



SigC54xx-PC104 Board shown with one processor module and one 4-channel audio module installed

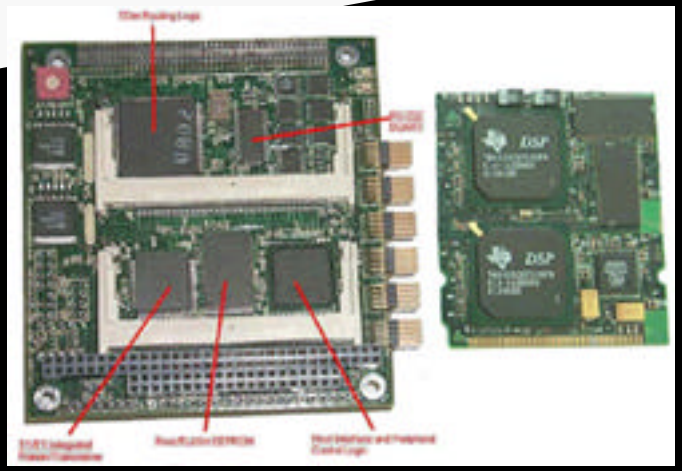
Click here to see full-size picture
http://www.signalogic.com/sigc54fs.htm



SigC54/55xx-PCI board mechanical layout shown above, including 4x SODIMM sites for C54xx/C55xx processor and I/O

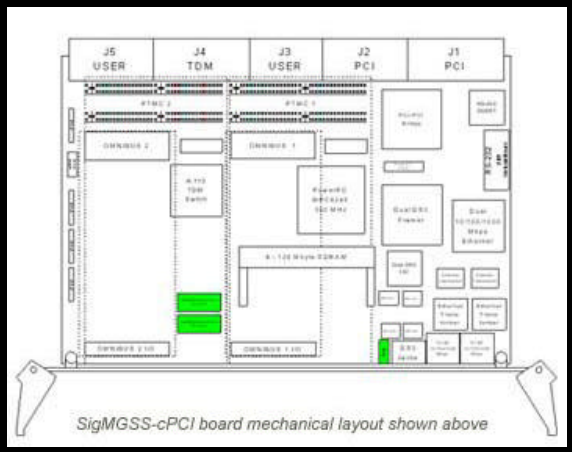
Click here to see full-size picture
http://www.signalogic.com/sigc5xxfs.htm

Hardware and Embedded System Images (continued)



SigC67xx-PC/104 Board, Top View, without modules installed. Host interface PLD logic, T1/E1 interface, TDM routing logic, RS-232 DUART, and boot / FLASH EEPROM shown.

Click here to see full-size picture
http://www.signalogic.com/sigc67fs.htm



Click here to see full-size picture
http://www.signalogic.com/sigmgssfs.htm

Click here to see full-size picture
http://www.signalogic.com/wireless_fs.htm

Development Systems

- **VDS** - VDS™ (Voice-Over-IP Development System) software includes numerous voice-over-packet development, analysis, measurement, test, and simulation functions. The software includes network-side and telephony-side configuration and management. Voice software settings include CODEC type, echo canceller, jitter buffer, silence suppression, real-time parameters, and packet impairment test and measurement options. Voice software selections made from the GUI directly set properties in the Telogy voice software running in real-time on the C54xx DSP devices. Packet impairment options include arbitrary delay, jitter, frame erasure, bit and burst errors, random, repeat, and pattern timing options. Data I/O options include arbitrary delay, jitter, frame erasure, bit and burst errors, random, repeat, and pattern timing options. Data I/O options include file, TDM, and analog. Packet communication protocol support includes UDP/IP, RTP, RTCP, and TCP/IP (fax protocol). Physical Layer configuration includes network (modem, DSL, LAN), and synchronous serial (RS-485, HDLC).

  This application is designed to be user-friendly and still allow core changes for testing networks. The transfer files, buffer type, transfer type, hardware, board type, and other features are adaptable to work with protocol compliant Networks.

  For detailed information, please see http://www.signalogic.com/vds.htm

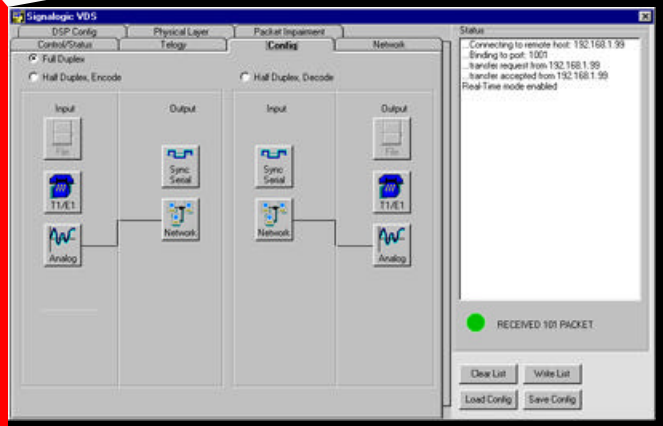
- **SigC54xx Development System** - The SigC54xx Development System provides the basis for real-time, multichannel algorithm development for telecom applications. Examples include MELP (http://www.signalogic.com/melp.htm)and other speech compression, MPEG audio, echo canceller, etc. The SigC54xx Development system can be used with Win9x or WinNT host PC platforms.

  The SigC54xx SODIMM, SIMM, and CONAN modules are fully supported by the following off-the-shelf software development packages:
  - Hypersignal-Macro (http://www.signalogic.com/hsm.htm)
  - DirectDSP (http://www.signalogic.com/directDSP.htm)
  - DSPower-Block Diagram (http://www.signalogic.com/dspower.htm)

  The DirectDSP software includes support for popular host programming environments, including MATLAB (http://www.signalogic.com/matlab.htm), C/C++ (MSVC and Borland), Visual Basic, and LabVIEW. See Software Support (http://www.signalogic.com/sigc54x.htm#Software_Support) for more information.

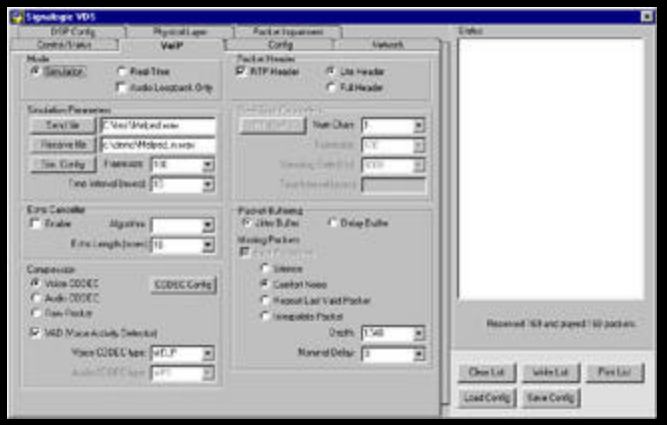
  For detailed information, please see http://www.signalogic.com/c54x_dev.htm

Development System Images

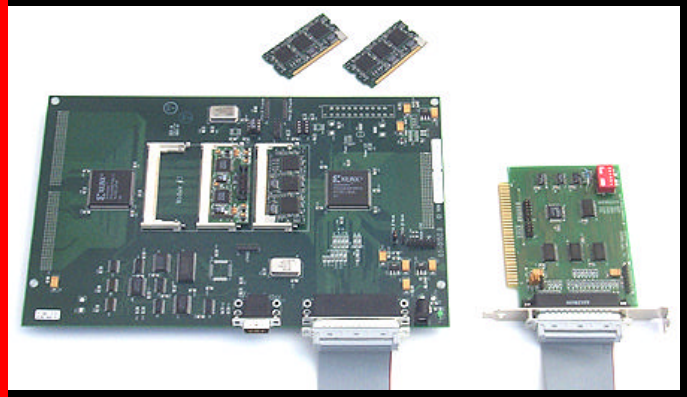


VDS example displays

Click here to see full-size picture
http://www.signalogic.com/screen_shoots/configtab.JPG



Click here to see full-size picture
http://www.signalogic.com/screen_shoots/voip_tab.JPG



SigC54xx Development Platform board

Click here to see full-size picture
http://www.signalogic.com/c54devfs.htm